# A SPIRAL-BAND HEAT EXCHANGER

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# UNEDITED ROUGH DRAFT TRANSLATION

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# A SPIRAL-BAND HEAT EXCHANGER

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Spiral-band heat exchangers made of sections with spiral and axial channels for conducting the two media exchanging heat are well known.

In distinction from the known spiral-band heat exchangers, each section of the proposed one represents a system of channels arranged in spiral loops in which one of the streams of heat-exchanging media moves from the center of the channel to the periphery with a consequent change in the direction of its travel to a reverse one. This construction on the part of the heat exchanger improves the temperature regime in the axial channels of the section and permits a decrease in its weight and dimensions.

Figure 1 is a schematic of the spiral-band heat exchanger in vertical cross-section; Figure 2 is a layout of one section of the heat exchanger.

In heat-exchanger housing 1 are assembled several sections 2, one on top of the other, representing a system of flat closed channels 3 formed by several thin metal bands 4, 5, 6, and 7, arranged in spiral loops. For the thermal agent the heat exchanger is provided

with an inlet sleeve 8 and an outlet sleeve 9, and for the ingress and egress of the product to be processed there are the corresponding connections 10 and 11. To convey the thermal agent from one section to another the sections are constructed with axial channels in the center. When the device is working the thermal agent (one of the streams of heat-exchanging media) makes its way downwards from above relative to the housing of the device, and from the center of the channel to the periphery with a subsequent change in direction of movement from the periphery to the center of the channel in every section. The product treated (the second of the heat-exchanging media) enters through connection 10, moves through the cavity between the channels 3 of the heat exchanger's sections and exits through connection 11.

The heat exchanger may be used in cases of small drops in pressure and of coefficients of heat emission close to each other in the media exchanging heat.

A spiral-band heat exchanger composed of sections with spiral and axial channels for conveying two heat-exchanging media, differing in this, that, with the aim of uniformly distributing temperature differences in the axial channels of a section (improving the temperature regimes) and diminishing the weight and size of the device, each section represent a system of channels arranged in spiral loops in which one of the streams move from the center of the channel to the periphery with a consequent change in direction to the reverse.

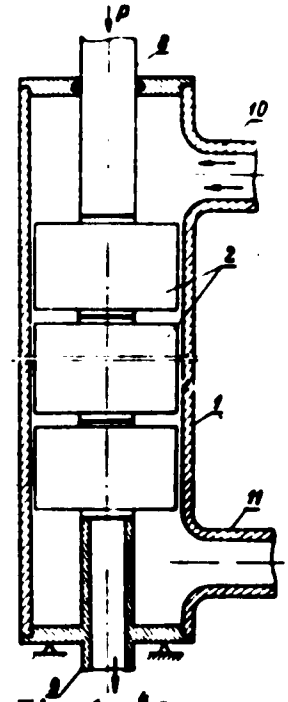


Fig. 1


Fig. 2

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